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were many physiographical notes in our "Geographical Record." His "Physical Geography of New York State" was undertaken at the request of this Society, parts of it appearing in Volumes 28-31, before he published these papers, somewhat extended, in book form. (The Physical Geography of New York State; with a Chapter on Climate, by E. T. Turner, 396-7 pp. Maps, figs. New York, 1902.) In 1905 he received a grant from the Society to help him carry out, in conjunction with Lawrence Martin, research work at Yakutat Bay, Alaska, the results of which were published in two papers in Vol. 38 of the *Bulletin,* under the title, "Observations on Glaciers and Glaciation at Yakutat Bay, Alaska." Among other notable papers from his pen appearing in the *Bulletin* was "Decline of Farming in Southern-Central New York," which attracted much attention. It is expected to publish later in the *Bulletin* a fuller statement concerning his scientific writings.

GEOGRAPHICAL RECORD

AMERICAN GEOGRAPHICAL SOCIETY

THE MARCH MEETING OF THE SOCIETY. A regular meeting of the Society was held at the Engineering Societies' Building, No. 29 W. 39th Street, on Tuesday, March 26, 1912, at 8.30 P. M. The Chair was occupied by Councillor Levi Holbrook.

The following persons, recommended by the Council, were elected to fellowship:

Percy Herbert Ashmead,
Hugh P. Baker,
L. A. Bauer,
John I. D. Bristol,
Charles P. Bonnett,
Newton H. Harding,
George F. Kunz,
Frank B. Mackay,
Willis L. Moore,
Hermann Norden,
James McAlpin Pyle,
William G. Reed.

The Chairman then introduced Lieutenant Charles F. Gammon, formerly of the U. S. Consulate in China and the Chinese Imperial University, who addressed the Society on "China." The lecture was illustrated by numerous lantern slides and was enjoyed by an audience that filled the Auditorium. On the adjournment of the Society the audience had an opportunity to meet the lecturer in the lower hall.

NORTH AMERICA

OIL AND GAS RESOURCES OF TENNESSEE. In its November number, *The Resources of Tennessee,* published monthly by the State Geological Survey of Tennessee, says that the Survey and the U. S. Geological Survey will cooperate in studies of the oil and gas resources of the State. Drilling is now going on in several districts and favorable showing of oil has been reported from many fields.

POTASH FOUND IN THE MOHAVE DESERT. A large deposit of potash salts in the Mohave Desert of southern California has been reported by field men of the United States Geological Survey and the Bureau of Soils. Analyses of the brine in Borax or Searles Lake, in San Bernardino County, show 6.78 per cent. of potash, and the amount of the material available is known to be enormous. The potash, it is believed, can be used as fertilizer without employing any special reduction process, and the climatic conditions of the area are especially favorable to its separation and recovery by solar evaporation. Borax Lake is the last remaining pocket of a great ancient lake, which has almost dried up, thus concentrating a vast amount of saline minerals. Millions of tons of salt, soda, and borax cover the surface of the lake and deposits of soda and borax have been worked, but the development of the potash in the lake deposits had not been considered until recently.

IRON ORE RESERVES OF MICHIGAN. This is the title of an advance chapter by C. K. Leith, from "Mineral Resources for 1911," U. S. Geol. Surv. The report shows an estimated reserve in the mines of 124,598,164 long tons of high-grade ore—that is, what is known under present mining conditions as commercial ore—and of 44,982,938 long tons in drilled areas, or a total reserve of 169,581,102 long tons. The general conclusion of Dr. Leith's report is that at no time in the past has the outlook for long life for Michigan ores been any better assured than it is now.

RAPID GROWTH OF REGINA. A decade ago the present capital of Saskatchewan contained only a few hundred inhabitants. Regina is a good illustration of the rapid growth of some new Canadian towns. It is now a busy city of 30,000 inhabitants. It stands at the crossing of two great railroads. Buildings to the value of $5,000,000 were erected last year and it is said the building movement this season will be still greater. Over $1,000,000 has been expended on street and other improvements, the electric street car system, now seven miles long, is owned by the city, and the water works, now developing, will supply enough water for a population of 100,000 people. Regina is becoming a very important distributing center and its sales of agricultural machinery, amounting last year to nearly $5,000,000, have never yet been equalled by any other Canadian city.

RAILROADS IN ALBERTA. The Trade Commissioner for Canada reports that the government of Alberta has planned to guarantee bonds for the construction of 1405 miles of railroad to be built by Canadian Northern Railway Branch Line companies. These guaranteed lines of railroads will cover Alberta with a net work extending from Fort McMurray, on the Athabasca River, in the East, and Peace River Landing, on the Peace River, in the Northwest, to Pincher Creek in the Southwest and the international boundary south of Medicine Hat. (*Bd. of Trade Jour.* No. 798, March 14, 1912, p. 589.)

NEW FARM LANDS IN THE PEACE RIVER VALLEY. The Canadian Government has surveyed and thrown open an area in the Peace River Valley, thirty-four miles long by twenty-four wide. The region is declared to be one of the best agricultural districts in that valley. Its nearest railroad point is Edson on the Grand Trunk Pacific Railway, which is now the largest station on the line west of Winnipeg.

THE TWENTY-FOOT TERRACE AND SEA CLIFF OF THE LOWER ST. LAWRENCE. Professor James Walter Goldthwait writes (*American Journal of Science,* Oct. 1911), that this terrace and sea-cliff is not only the best cut and sharpest of all the elevated beaches and sea-cliffs on the upper Saint Lawrence, but the only sharp and well-cut one. Each of the other beaches—and they occur all the way up to 630 feet above the river—is so slightly marked that we must suppose that the warping uplift was steady and without pause from the time the ice began to draw away from the region to the date of the twenty-foot cliff. This Prof. Goldthwait christens the Micmac. It is strong because it was cut during a long, slow submergence, which gives the sharpest possible cliff-cutting, just as occurs in the Nipissing beaches of the Great Lakes. The paper shows the advantage that Goldthwait possesses in his wide as well as close study of lake shores. He finds that a similar interruption of emergence by depression has been made out in Scandinavia, which may be contemporaneous with this in America.

MARK JEFFERSON.

THE NEW PORT OF PRINCE RUPERT. The *Canada Gazette* for March 30, contains a proclamation announcing the establishment as a public port of "all the waters of Prince Rupert Harbor, including Tuck Inlet, Lake Wainwright, and the Porpoise Harbor with connecting and tributary waters." Prince Rupert is the terminus on the Pacific of the Grand Trunk Pacific Railway.

SOUTH AMERICA

RUBBER INDUSTRY IN BRAZIL The competition of the rubber plantations of the East Indies has been so successful that extraordinary measures will have to be taken to keep the industry on its feet in the Amazon basin. The Brazilian Government proposed to waive the import tax on all implements used in extraction of rubber, to provide prizes for the establishment of new plantations, to found experimental farms in almost every province, to give free instruction and free seed to all interested in rubber culture, and to grant subsidies for the installation of factories for the manufacture of pure rubber at Manaos and Para (*Daily Consular and Trade Rept.,* No. 19, Jan. 23, 1912). These plans may not be realized for some years to come, but it is of great importance to know that big projects are under way, for if the Government takes the same paternal attitude toward the rubber industry that it has given to the coffee and sugar industries and the related question of immigration and colonization, we shall soon see fundamental changes. It is planned to grant subsidies for railway construction and to build a series of roads in strategic positions to supplement the present system of fluvial transportation. Steamers will be put on many rivers and coal depots established at inland points. The Government will undertake direct colonization, hold a triennial exhibition at Rio de Janeiro, and make a reduction in the, at present, very burdensome export tax on rubber.

ISAIAH BOWMAN.

FUEL RESOURCES OF THE CENTRAL ANDES. The lofty semi-arid plateaus of the Central Andes have many resources of great value to men, though, up to the present, modern business has suffered because of the absence of a native coal supply. Recently there has been reported (*Daily Consular and Trade Report,* No. 35, Feb. 10, 1912) an apparently large and rich coal deposit near Lake Titicaca. The fact that the greater percentage of the fuel used at the present time is brushwood and llama dung and very expensive coal, lends great interest to the reported discovery. Coal is now imported from Wales, New South Wales, Australia, and from Germany and Belgium. This is true even of the coal used by the Pacific Steam Navigation Company's steamers, though the newly organized Peruvian Steamship Company buys its coal at Panama. Oil deposits of possibly great value have also been discovered north of Lake Titicaca, and, from reports gathered during the past year, there is a possibility that its development will not be long delayed, since the ease with which it may be handled gives it a great advantage over coal. Reports of coal deposits on the west flank of the Andes in northern Chile east of Tacna and near the line of the new railroad from Arica to La Paz, have also been received and some of this coal on examination proves to be of sufficiently high grade for steamship and railroad use. While coal deposits have been reported from several points in Peru, none has yet been discovered in Bolivia, so that from the standpoint of that country the Tacna and Titicaca reports have special interest. ISAIAH BOWMAN.

POLAR

THE CROCKER LAND EXPEDITION. The Steam Whaler *Diana,* a barkantine of about 500 tons register, has been chartered to carry the Crocker Land party to the south side of Bache Peninsula (Flagler Bay) or as near it as the ice will permit (*Bull.* March, 1912, pp. 189-193). Purchases of supplies and equipment are now in progress on the basis of providing food for five or six men for three years. The largest single items of food supply are 14,000 pounds of pemmican and 35,000 pounds of dog biscuit. The latter will be used at winter quarters instead of the whale meat provided by earlier expeditions.

A full photographic outfit is included. Among the instruments to be taken are barographs, thermographs, anemometers, etc., in addition to the ordinary instruments for determining geographical position. The surgeon and the scientific assistant have not yet been selected. While it may now be definitely announced that the expedition is going this year, all the money needed has not yet been secured and additional subscriptions are earnestly desired.

POLAR MEETING AT THE AMERICAN MUSEUM OF NATURAL HISTORY. The American Museum of Natural History and the American Geographical Society celebrated in the auditorium of the Museum on the evening of April 5, the attainment of the South Pole by Captain Amundsen, the third anniversary of the achievement of the North Pole by Rear-Admiral Robert E. Peary and the recent inauguration of the Crocker Land Expedition. A very large audience listened to speeches by President Osborn of the Museum, Vice-President Greenough of the American Geographical Society, Rear-Admiral Peary, representatives of the Philadelphia and National Geographic Societies and others. An interesting feature was the presentation to Admiral Peary by the Peary Arctic Club of its medal of honor.

A REMARKABLE SUMMER JOURNEY IN ARCTIC SEAS. A letter was read at the meeting of the Real Sociedad Geografica on Nov. 14, 1911, from Señor D. Francisco Gisbert [a summary of his plans is in the *Bulletin,* 1911, p. 859], giving a short account of his voyage in Arctic seas last summer. (*Bol.* R. Soc. Geogr., Vol. 9, pp. 41-47, Madrid, 1911.) On July 1 his party sailed from Tromsö headed for Jan Mayen. Ice was met, a few days later, forty nautical miles east of Jan Mayen. This was recorded as an unusual extension for that season. A few days were spent at Mary Muss Bay and excursions were made inland. Señor Gisbert says that in the four years since his last visit many changes due to the volcanic nature of the island have taken place. The lake near Great

Wood Bay, which was six kilometers wide, had totally disappeared. The land was found to be ten meters higher above sea-level.

On leaving Jan Mayen the expedition sailed towards Shannon Island, on the east coast of Greenland above 75°. The enormous quantity of ice proved to be a serious obstacle to the trip. The explorer says he never saw so much ice in July and the conviction grew on him that he would not reach the coast. However, on July 27, after continual struggle with the ice, the coast of Greenland as well as Sabine Island south of 75°, were sighted. Owing to arrangements made for the party's return to Tromsö on Aug. 10 at the latest, no attempt was made to land. Tromsö was reached on Aug. 4.

Señor Gisbert left Tromsö again on Aug. 14 for the North. Ice was met in 75° 30′ N. The southern islands of Franz Josef Land were sighted twice, but thick ice prevented landing. The explorer finally succeeded in following an open channel which led to Cape Flora, and Jackson's station there was visited. The outlook from the summit of a nearby mountain showed favorable conditions for an attempt to cross Miers Sound and attain the British Channel. In this channel the party found an unmapped island, the bearings of which were determined. The island is a half mile long and 500 meters in width. Details as to its exact location, formation, etc., are promised by the explorer. The British Channel was followed nearly to 81°. No attempt was made to reach Teplitz Bay (81° 47′ N.), on account of weather conditions and, furthermore, ice was forming rapidly. It was decided to return by way of De Bruyne Sound. On leaving this passage it was found that ice conditions permitted extending the trip somewhat and the ship was headed East towards Wilczek and Salm islands. Hardly had the former been attained, however, when a severe snowstorm forced the ship south. Much difficulty was experienced in getting out of the ice. Finally open water was reached near 77° N. and Norway was attained on Sept. 10.

This was certainly an unusual trip for a season of rather poor ice navigation. To have reached nearly 81° N. in Franz Josef Land, to have spent some time on Jan Mayen in the same month that the Duchess of Bedford's party was prevented by surf from landing (*Geogr. Journ.*, Vol. 38, Nov., 1911, p. 537) and about a month earlier than the vain attempt of the Stackhouse Expedition to land in Mary Muss Bay, defeated, as it was, by heavy seas (*Bull. Amer. Geogr. Soc.*, Vol. 43, Dec., 1911, pp. 881-890), and to steam within sight of the East Greenland coast and back to Tromsö, all within two months and ten days and in spite of very bad ice on the Greenland trip, make a series of achievments worth recording.

A NEW GREENLAND EXPEDITION. Captain Koch, who was with the Mylius Erichsen Expedition in 1906-08, will lead a party to Greenland this year and will attempt, in 1913, to cross the inland ice from the east to the west coasts. The expedition expects to land at Königin Luise Land, an ice-free stretch of the coast about 90 miles north of Cape Bismarck. The inland ice does not extend to the coast here, but is held back by high mountains so that the comparatively wide coastal strip is richer in plant and animal life than any other part of the east coast, as far as known. It is expected to make thorough studies in this region and in the spring next year to begin the march over the inland ice with the design of penetrating to Lachsfjord near Upernivik on the west coast. The journey of about 630 miles will be across one of the broadest parts of Greenland and is expected to take from two to three months. (*Geogr. Zeit.*, Vol. 18, 1912, No. 3, p. 171.)

Russian Trading Post in North Novaya Zemlia. An article by B. I. Sadovski (*Izviestiia* of the Archangel Society for the Exploration of the Russian North, Vol. 4, 1912, Nos. 1-4), says that a new settlement was founded on Novaya Zemlia in 1910. As the Russian government is anxious to strengthen its authority on these islands, particularly to protect the northern island from the encroachment of foreigners, it appropriated funds for the establishment of a trading post in Cross Bay, 74° 10′ N. Lat. The erection of a large house, a chapel, and a bathing pavilion began in July, 1910. The colonists—Russian peasants, eleven in all—are supplied with food, boats, fishing implements, firearms and clothing. This is the first Russian trading post on the northern island and the fourth settlement on Novaya Zemlia, with 103 inhabitants all told. The colonists showed good results in 1910. Merchants from St. Petersburg and Moscow were invited to attend the sales; particularly high prices were realized on arctic fox and bear skins, and the total amounted to over $10,000.

H. de H.

PHYSICAL GEOGRAPHY

The Cyclonic Unit in Rainfall Observations. The usual method of observing and of averaging rainfalls, by days, months and years, while it has its obvious advantages, is from many points of view unsatisfactory because it does not show causes and conditions of the rainfalls. In the greater part of the so-called "temperate" zones the study of the amounts of rainfall which occur in connection with different individual cyclones makes the whole subject far more vivid and also far more rational. In a given month we have a rainfall below the normal. In another month we have a rainfall well in excess of the normal. What caused the difference? The usual monthly summary simply shows the fact. A study of the rainfalls of these two months by cyclones shows at once that the difference in the two cases was the result of a difference in the number, or tracks, or intensity, of the cyclones which brought the rainfall.

In a paper on "The Cyclonic Distribution of Rainfall in the United States" (*Monthly Weather Review*, Oct., 1911), William G. Reed, of the University of California, has published the first general study of this kind for the United States. Previous investigations in this country along similar lines have been made by Loomis, by the New England Meteorological Society, and by others. The author gives a brief account of what has been done by others in this direction, particular attention being paid to the excellent maps and discussions of cyclonic rainfalls in Great Britain published by Dr. H. R. Mill. The method of work in the present case was to enter, on a blank map, the sum-total of the daily amounts of precipitation due to a given cyclone as the depression moved across the United States, and then to draw isohyets for "trace," 0.5 inch, 1.0 inch, and 2.0 inches. Sometimes higher values than 2.0 inches were used. The maps, when completed, show the amount and the distribution of precipitation by cyclones. Considerable difficulty was naturally experienced in separating different cyclones, in dealing with thunderstorm rains, and in other matters. Yet, in spite of these handicaps, and in spite of the fact that the data studied covered only a comparatively short period of time and are obviously far from complete, the results of the investigation are important. The irregularity in the distribution of the heavier and lighter rainfalls is a very striking feature, as shown in several selected typical charts. It would be well if such a study could be carried much further, to cover a long period of years, based upon the daily rainfall records of the thousands of volunteer observers of the Weather Bureau, and if the causes of the "patchy" distribution of rainfall could be worked out. This paper is along new lines for this country, and is, obviously, only a beginning.

R. DeC. Ward.

Magnetic Survey Work of the Carnegie Institution. The magnetic survey vessel *Carnegie,* left Manila on March 23, under the command of W. J. Peters, bound for Suva, Fiji, whence she will proceed across the Pacific to San Diego, Cal., arriving there towards the end of June. From San Diego the vessel will go to Tahiti, crossing the tracks of the former vessel, the *Galilee,* and filling in gaps; next to Coronel, Chile, then around the Horn. Finally, after having completed the general survey work in the South Atlantic Ocean, she will return to New York towards the end of 1913.

Magnetic Observer Kidson is now making magnetic observations in the western part of Australia in continuation of the general magnetic survey of Australia. Mr. J. P. Ault was placed in charge of a South American party, consisting, besides himself, of Donald Mackenzie and H. R. Schmitt. The party left New Orleans on March 30 and will make magnetic observations chiefly in Peru, Bolivia, Paraguay and Uruguay. Magnetic Observers W. H. Sligh and D. W. Berky are carrying on the general magnetic survey of the northwestern part of Africa. In connection with the total solar eclipse of Oct. 10, 1912, the belt of totality of which passes through Ecuador and Brazil, arrangements are being made to have two or three parties at suitable points along the belt for magnetic and electric observations during the time of the eclipse.

PERSONAL

Plans of Some American Geographers for this Summer. Avard L. Bishop, of Yale, intends to travel in Western Canada to study the agricultural resources of the three prairie provinces and to collect information on marketing crops and other matters of commercial and economic significance.

Isaiah Bowman, of Yale, will be in New Haven until Aug. 15, working up the geological and geographical data of the Yale-Peruvian Expedition and writing his report on it. Later, he will accompany the Transcontinental Excursion of our Society.

Robert M. Brown, State Normal School, Worcester, Mass., includes in his summer programme the study of shorelines, particularly in reference to shore drifts along Narragansett Bay, Martha's Vineyard, etc.

Frank Carney, Denison University, O., will continue his field work for the Ohio Geological Survey, mapping the old shorelines of the ice-front lakes. The survey is doing this work in great detail. Mr. Carney has mapped the raised beaches from the Pennsylvania State line west to near Leipsic. He has given three seasons to the study of these old shorelines and their geographical interpretation and the work will occupy at least two more seasons.

G. C. Curtis of Boston, will probably continue his studies of the Atlantic coast line which he began fifteen years ago with the discovery of ancient sea margins on Monhegan Island, coast of Maine. During the past two summers the coasts of Nova Scotia, Cape Breton, and southern Newfoundland were studied in detail.

Richard E. Dodge of Teachers College, Columbia University, will take part in the Transcontinental Excursion.

N. M. Fenneman, University of Cincinnati, has completed the pleistocene and economic portion of the Cincinnati Folio for the U. S. Geological Survey. Dr. E. O. Ulrich is doing the paleozoic work and as soon as his task is completed the Folio, which will be a very large one, will be published. Mr. Fenneman is now engaged on the Hamilton-Mason (double) Folio, which covers the area next north of the Cincinnati quadrangles. He will be a member of the Transcontinental Excursion.

J. Paul Goode, of the University of Chicago, will give two courses in the summer school at that institution, one on the economic geography of our country and the other on the economic geography of Europe.

William H. Hobbs, professor of geology at the University of Michigan, has been appointed by President Hutchins to represent the University at the 250th anniversary of the Royal Society of London, which will be held from July 16 to 18. Prof. Hobbs has leave of absence for the school year 1912-1913. Prof. E. C. Case will have charge of the Department of Geology. Mr. Hobbs's classes in geology will be conducted by Frank Carney, of Denison University. Mr. Hobbs will devote the year to study and travel abroad. In his field studies this summer he will pursue especially two lines of investigation: One of these is concerned with the nature of weathering at the bottom of the Bergschrund of Swiss glaciers, and the other, to the relation between relief of the land and joint structures. For the latter study he intends to visit Malta, the Balkan Peninsula and the Egyptian Desert.

George D. Hubbard, of Oberlin College, will lead a party of students into Western Virginia, where New River cuts through the Appalachian Mountains. The rocks from the Cambrian to the Mississippian, fifteen formations in all, are exposed in this neighborhood, and large and small faults, mineral deposits, and zinc, lead and copper mines may be studied by the students.

Ellsworth Huntington arrived in Havana, Cuba, from Yucatan early in April and expects soon to return to New Haven. He had written earlier that he hoped to spend six or seven weeks in Mexico visiting certain ruins and enclosed lake basins, among them that in which the City of Mexico lies. When the city was founded it contained a lake that has been drained by the digging of a tunnel. He desired to study the old strands of the lake and any features indicative of former expansion. Later he hoped to go further south to study the large terraces that are said to flank many valleys on the dry, west side; also to get some idea of the ruins at Oaxaca and Mitla, especially to see whether terraces had in any case been formed since their construction. From Mitla he planned to cross the Isthmus of Tehuantepec and go by land to Yucatan. There he would examine the great ruins of the Mayas to see how far their physiographic conditions are like those of Mitla. This summer he expects to spend June and July among the Sierras, making further measurements of the rate of growth of the Big Trees. He will take a machine for boring horizontal cores from the trees and, if it works successfully, will be able to bring back sections from living trees.

Douglas Wilson Johnson, Assistant Professor of Physiography at Harvard University, has been appointed Associate Professor of Physiography at Columbia University. He is now spending a half year in Europe and will begin his service at Columbia by giving two courses on Geography in the Summer School, which will open in July.

Walter S. Tower, of the University of Chicago, sailed from New York, on March 20, for South America, where he intends to spend six months studying the economic geography of Argentina, Chile and southern Brazil.

R. DeC. Ward, of Harvard University, will begin work on his book on the "Climatology of the United States" as soon as the college term closes in June. Later he will take part in the Transcontinental Excursion.

PRESIDENT OF THE GEOGRAPHICAL SOCIETY OF LIMA. Engineer José Balta has been elected President of the Geographical Society of Lima for 1912.

GENERAL

DROUGHT AND BUILDINGS. The drought of the summer of 1911, in England, caused widespread and expensive damage to buildings, as reported in *The Builder* for January 5, 1912. In cases where foundations rested on clay, the drying of the clay necessitated underpinning in hundreds of cases in and about London. Whereas, in ordinary summers, the clay is quite moist at a depth of 2.5 to 3 feet below the surface, during the past summer it was often perfectly dry at depths of 5 and 6 feet. The dry clay became powdery and when the autumn rains began, the water found its way into the fissures and washed out the clay. Thus sliding or lateral movements took place. The study of such weather effects upon the clay soils emphasizes the importance of having a depth of foundation which reaches below the level affected by snow and rain, and of carrying all the foundations to a uniform depth. In more than seventy cases of the settling of buildings studied by the author of the article in *The Builder,* there were only two or three cases in which fractures occurred where the foundations were at a uniform depth. R. DEC. WARD.

PHOTOGRAPHING RED SNOW IN NATURAL COLORS. A meteorological photograph of very unusual interest was taken by Mr. Ford A. Carpenter, Local Forecaster of the U. S. Weather Bureau at San Diego, Cal., in July, 1911, during a camping trip of the Sierra Club. The photograph, which is the only one of its kind, shows the phenomenon of "red snow" in natural colors. It was taken by the Lumière process. The red snow first attracted attention because the hoof prints of the pack animals, which were plunging through deep snow in the snowfields on the saddle of the Vogelsang Pass, were observed to be "splotched with red as if the snow-crust had cut the mules' feet and dyed the snow with drops of blood." The picture, which is admirably reproduced in the *Transactions of the San Diego Society of Natural History,* Vol. 1, No. 3, pp. 108-111, was taken on the summit of Lambert Dome. Mr. Carpenter's notes say: "It looks as if carmine ink had been spilled over the snow." R. DEC. WARD.

USEFUL OLD MAPS. Sir Herbert George Fordham recently read a paper, "John Cary, Engraver and Map-seller, 1769-1836," before the Cambridge Antiquarian Society, England, in which he said that Mr. Cary was engraving maps and plans earlier than 1783, his publications marking a decided advance in the art of cartography in England. Of his maps and atlases the three sets of the English and Welsh counties, which went through many additions, are the best known. The plates of these maps still exist and the county maps of the folio atlas give so good an outline of the roads, and are so clear and satisfactory in their details, that they are, even now, though more than a century old, being printed and published for the use of motorists.

DR. BAUER'S TRIP OF INSPECTION. The *Bulletin* mentioned (Feb., p. 119) the return to Washington of Dr. L. A. Bauer after a nine and a half months' trip of inspection of the magnetic work being conducted, under his direction, on board the *Carnegie* and by land expeditions in Australia and Asia. *En route* he visited the magnetic observatories at Apia, Christchurch, Melbourne, Mauritius, Kodaikanal, Bombay and Alibag, Dehra Dun, Barrackpore, Toungoo, Batavia and Buitenzorg, Hongkong, Manila and Antipolo, Zi-ka-wei, Tsingtau, Tokio, Honolulu and Tucson, Arizona. He also conferred with various government officials and scientific organizations and made arrangements regarding co-operative magnetic survey work. He observed the total solar eclipse of April 28, 1911, at Tau Island of the Manu group, having been favored with clear weather.

OBITUARY

A. LAWRENCE ROTCH. Professor Rotch died in Boston on April 7 at the age of fifty-one years, leaving a wife and three children. His father's family were among the founders of New Bedford and his mother was a daughter of Abbott Lawrence, formerly Minister to England. Young Rotch spent much of his youth in Europe, and, on returning to America, he entered the Chauncey Hall School, where he was prepared for the Massachusetts Institute of Technology, in which he took the course of mechanical engineering and graduated in 1884.

That year he begin to build the Blue Hill Meteorological Observatory, with which his name has been associated, and in which the first observations were made on Feb. 1, 1885. Its annual observations have been published in the *Annals* of the Observatory of Harvard, College. He set a pattern to meteorologists and adopted the international system of records before they came into use at Washington. At Blue Hill he first introduced the use of kites in exploring the upper air and became especially noted for his studies by means of kites and balloons. He obtained the first observations high above the Atlantic with kites in 1901 and the first observations, five to ten miles above the American Continent, with registration balloons in 1904. In 1905 and 1906, he collaborated with Teisserenc de Bort in sending a steam yacht to explore the tropical atmosphere. The efforts he made to advance knowledge of the upper air were recognized by honors awarded to him by learned societies and governments. Harvard gave him the A.M. degree and made him assistant in the Harvard Observatory. He also took part in scientific expeditions to South America, Europe and Africa. He was the author of "Sounding the Ocean of the Air" (1901), of "The Conquest of the Air" (1909), and of many articles in scientific journals.

PROF. DR. RICHARD ANDREE. This ethnographer and geographer died on Feb. 22, in his 77th year, while on the way from Nuremberg to Munich. His father was the founder of *Globus* and the son became its editor in 1891 and placed it in the first rank of ethnographical periodicals. His writings, in his favorite field and on geographical topics, were widely read; and he was closely associated with the production of the famous "Andree Handatlas" and other cartographic products published by Velhagen & Klasing in Leipzig.

PROF. ALBERT SCOBEL. This well-known cartographer is dead at the age of 61 years. He was the successor of Richard Andree as superintendent of Velhagen & Klasing's geographical establishment in Leipzig and in the editorship of the Andree Handatlas. The fifth edition of his very useful "Geographisches Handbuch" in two volumes appeared in 1910. He published a Commercial Atlas, many school atlases and was one of the best representatives of German cartography.